

This listing of claims will replace all prior versions and listings of claims in the application.

COMPLETE LISTING OF CLAIMS:

Claims 1-8 : (Canceled)

Claim 9 : (New) An optical network node for an n-channel dense wavelength division multiplexing (DWDM) optical network, the node comprising: an add path for adding an n-channel wavelength multiplex onto the network, some of the n-channels carrying signals to be added onto the network, the add path including an n-channel signal combiner for combining the n-channel signals, an optical amplifier for amplifying an output of the signal combiner, a multichannel wavelength selective filter with variable-per-channel attenuation for blocking channels not carrying signals to be added to the network or controlling an amplitude of the added signals, and an add coupler for coupling the add path to the network.

Claim 10 : (New) The optical network node according to claim 9, wherein the multichannel wavelength selective filter includes an n-channel demultiplexer having n outputs, an n-channel multiplexer having n inputs, and a variable optical attenuator arranged between each of the demultiplexer outputs and multiplexer inputs, wherein the variable attenuator on any given channel is set to block the signal on that channel if no signal on that channel is to be added onto the network, or used to control the amplitude of the added signals.

Claim 11 : (New) The optical network node according to claim 9, comprising means for running sources for generating the n-channel signals at maximum power.

Claim 12 : (New) A dense wavelength division multiplexing (DWDM) optical communications network having a plurality of nodes, each node comprising: an add path for

adding an n-channel wavelength multiplex onto the network, some of the n-channels carrying signals to be added onto the network, the add path including an n-channel signal combiner for combining the n-channel signals, an optical amplifier for amplifying an output of the signal combiner, a multichannel wavelength selective filter with variable-per-channel attenuation for blocking channels not carrying signals to be added to the network or controlling an amplitude of the added signals, and an add coupler for coupling the add path to the network.

Claim 13 : (New) A method of adding an n-channel dense wavelength division multiplexing (DWDM) signal to an n-channel DWDM optical network, comprising the steps of: combining signals from a plurality of signal sources to provide an n-channel add signal combined output signal; amplifying the combined output signal; using a multichannel wavelength selective filter with variable-per-channel attenuation to selectively block channels of the combined output signal not carrying signals to be added onto the network or to control an amplitude of the added signals; and coupling the n-channel add signal onto the optical network.

Claim 14 : (New) The method according to claim 13, comprising running the signal sources at full power to optimize an optical signal-to-noise ratio of the signals added to the network.

Claim 15 : (New) The method according to claim 13, comprising demultiplexing the n-channel add signal using an n-channel demultiplexer, passing each output channel of the demultiplexer through a variable optical attenuator (VOA), and multiplexing VOA outputs to form the network add signal.

Claim 16 : (New) The method according to claim 15, wherein the non-signal carrying channels are blocked by attenuating to zero the outputs from the demultiplexer corresponding to those channels.